

Opening Ceremony Paris, 15–16 January 2009



Message from UNESCO Director-General

As lead LVN agency for the Year, UNESCO will work with the international Astronomical Union and other partners to make the initiative a success. In particular, we will encourage citizens of the world, especially young people, to learn more about the Universe in which we live and to explore the links that astronomy provides between the scientific and cultural spheres.

UNESCO's Member States give high importance to science education as a driver of sustainable development and co-nomic growth. Astronomy, the "first science," teaches us about the basic sciences – mathematics, physics – which are fundamental to understanding the Universe. Its stars and planets, including the Earth. The UNESCO Space Education Programme encourages the introduction of astronomy and other space-related subjects into the school curriculum and will implement activities that enhance knowledge in these fields through the IMAGONO Cornerstone Projects.

Under the World Heritage and Astronomy Initiative, UNESCO works to traise awareness of the importance of astronomical heritage worldwide, in terms of its enrichment of human history, the promotion of cultural diversity and the enhancement of international exchange. From World Heritage sites such as the ancient Neolithic monuments of Stonehenge, to the most recent Large Hardon Collider septement led by the European

Organization for Nuclear Research (CERN) which aims to throw light on the origin of the Universe, people have always looked to the sky for answers to the questions 'How did we get here' and 'Why are we here'.

The sky belongs to everybody. Astronomy is and can be an instrument to promote peace and understanding among nations and as such is at the heart of UNESCO's mission. I wish all of you every success for the Year.

Koïchiro Matsuura



Message from IAU President

Dear friends, colleagues and astronomy enthusiast

Welcome to the International Year of Astronomy 2009! It has taken many years of planning and organising, but we are finally ready to embark on what is destined to be a year full of discovery and wonder.

The International Astronomical Union Isunched 2009 as the international Year of Astronomy (YA2009) under the theme, The Universe, Yours to Discover, IYA2009 marks the 400th anniversary of the first astronomical observation through a tesecope by Galleo Gallei, Proclamed by the UN and endotsed by UNESCO, IYA2009 has already captured the imagination of countiess individuals.

This Opening Ceremony will certainly launch the Year in style There are representatives present from over 100 countries, including students specially selected to attend. Nobel prize winners and top scientists are on hand to lend their experties, and we will even have a like video conference with the European Very Large Telescope in Chile, to hear from researchers at the cuttine-region of science. This ceremony, and indeed the entire IYA2009, would not have reached this stage without the support of thousands of groups and individuals around the world. In particular, I would like to 'thank our Global Sponsors, Thales Alenia Space and Celestron, whose belief in IYA2009 has been urwavering.

I would also like to take this opportunity to give thanks to the many Organisational Associates who have pulled together to make the Year possible. Our Media Partners have been busy helping to spread the message of IVA2009 far and wide, so I offer my sincere thanks to them.

Astronomy is one of the oldest fundamental sciences, yet continues to make a prolound impact on our culture and is a powerful expression of the human intellect. This is the year in, which we can all make a difference, popularising astronomy as never before and bringing it to the masses. Remember that this Opening Ceremony is merely the beginning, the best is yet to come. The International Year of Astronomy 2009 is yours to discover!

Catherine Cesarsky

Programme

Thursday, 15 January

8 a.m.- 9 a.m. Registration and open visit to the exhibitions in the Miro Hall

Morning session

9 a.m.- 10.15 a.m. - Inauguration

- . Opening remarks by UNESCO Director-General, Mr. Koïchiro Matsuura
- International Year of Astronomy: Vision and Goals by Mrs Catherine Cesarsky, President, International Astronomical Union
- Remarks by Reynald Seznec, President and CEO of Thales Alenia Space
- Greetings by government ministers and important personalities

10.15 a.m.- 10.45 a.m. Coffee break

10.45 a.m.- 12 p.m. Astronomy: History and Culture

Chair: Jean-Claude Carrière Andun 20

- . The Skies of the World, a Multicultural Experience, Franco Pacini (Italy)
- The First Astronomers: Astronomy over Four Millennia, Juan Antonio Belmonte (Spain)
- Mayan Astronomy, Julieta Fierro (Mexico)
- Islamic Astronomy, George Saliba (USA)
- Astronomical Exploration and the Public Imagination, Baruch Blumberg (USA)

12 p.m. - 12.30 p.m. From Galileo (400 years) to Apollo (40 years)

Chair: Jean-Claude Carrière

From Galileo to Einstein, Francoise Balibar (France)

12.30 p.m. - 2 p.m. Lunch break

Afternoon session

2 p.m.- 3 p.m. (continuation of From Galileo (400 years)...)

Chair: Tim de Zeeuw

- The New Frontier: The Evoloration of the Solar System, André Brahic (France)
- · Echoes of Creation: Discovery of the Big Bang Fossil Radiation, Robert Wilson (USA)

3 p.m. - 3.30 p.m. Modern Astronomy: Discoveries on our Origins

From a "simple" beginning to our complex cosmos, Lord Martin Rees (UK)

3.30 p.m.- 4 p.m. Coffee break

4 p.m. - 5.30 p.m. (continuation of Modern Astronomy...)

Chair: Jan Palous

- A Multitude of Worlds: Extrasolar planets, Michel Mayor (Switzerland)
- IYA2009: Astronomy for Humankind, Cornerstones and Universe Awareness, Kevin Govender (South Africa)
 - Video and news from the South Pole Concordia Research Station, presented by Yves Frenot, Institut Paul Emile Victor (France)

Evening

7.30 p.m.- 9.30 p.m. Reception at the Palais de la Découverte

- Video clip of "Around the World, Around the Sky" by Robert Pansard-Besson (France)
- · Film of the Adler Planetarium presented by José-Francisco Salgado (USA) with the music "The Planets" by G. Holst

Friday, 16 January

8.30 a.m.- 9.00 a.m. Open visit to the exhibitions in the Miro Hall

Morning session

9.00 a.m.- 9.30 a,m. Video-conference with work stations

Chair: Beatriz Barbuy

- · Live video-conference with astronomers in the European Very Large Telescope in Paranal, Chile
- Virtual visit of the European Southern Observatory (ESO) and imaging session using one of the 8m telescopes

9.30 a.m. - 10.30 a.m. (continuation of Modern Astronomy...)

- The Biggest Question of All: The Search for Extraterrestrial Life, André Brack (France)
 The Question of Parallel Universe, Hubert Reeves (Canada)
- The Question of Falanci Oniverse, Fluberthe

10.30 a.m. - 11 a.m. Coffee break

11 a.m. - 12.30 p.m. Stars: Life and Death

Chair: Gang Zhao

- Pulsars: Progress and Puzzles, Jocelyn Bell Burnell (UK)
- Beautiful Death for a Star: Planetary Nebulae, Sylvia Torres-Peimbert (Mexico)
- · Cosmic Explosions: The Violent Supernovae, Ken'ichi Nomoto (Japan)

12.30 p.m. - 2 p.m. Lunch break

Afternoon session

2 p.m. - 3.30 p.m. Black holes and Space

- Report from the Abyss: Massive Black Holes, Reinhard Genzel (Germany)
- Astronomy from Space: The Hubble and James Webb Space Telescopes, Jonathan Gardner (USA)
- Cosmic Vision, David Southwood (ESA)
- Closing remarks by Walter Erdelen, Assistant Director-General for Natural Sciences, UNESCO

3.30 p.m. - 4 p.m. Coffee break

4 p.m. - 5.30 p.m. Remote observing and VLBI (3 parallel sessions)

- Remote observing in Hawaii with Canada-France-Hawaii Telescope (CFHT)
- . HI-21 cm radio observation of the Milky Way with Salsa Telescope in Onsala, Sweden
- · Global e-VLBI demonstration
- (One cosmic source will be observed continuously for 24 hours with radio telescopes on 6 continents, streaming data in real time to the correlator in the Netherlands via high-bandwidth fibre networks.)

Evening

6 p.m. - 7.30 p.m. Reception at the Foyer of Room I hosted by UNESCO

7.30 p.m. - 9.30 p.m. Cultural event

"Sun Rings" performance by the Kronos Quartet with the participation of the UNESCO Choir

Speakers



Franco Pacini (Italy)
The Skies Of The World, A Multicultural Experience

require rave always oben lascritated by least as not of years tail phenomena. Different ovilisations have projected their belefs, their hopes and fears onto the sky. Astronomy offers various opportunities to promete multioutural respect, especially among children. We shall summarise one particular example of this activity, developed at the Arcetri Astrophysical Observatory in Piorence.

Biography

Franco Pacini is Professor of Astrophysics at the University of Florence (flaty) and has carried out research, mostly in high energy astrophysics, in Italy, France, the United States and at the European Southern Observatory, He was Director of the Ancetin Astrophysical Observatory between 1978 and 2001, and President of the International Astronomical Union from 2001 to 2003. He is a member of Accademian Nazionale dei Lincei.

Notably, he predicted the existence of strongly magnetised, rotating neutron stars in 1967, before the discovery of pulsars. Together with Martin Harwit, in 1975, he has also interpreted ultraluminous infrared galaxies as evolutionary stages of massive star formation. He is a strong promoter of astronomical education, especially among children.



Juan Antonio Belmonte (Spain)
The First Astronomers: Astronomy Over Four Millenia

What do the prehistoric doffmens of the Iberian Peninsula, the cyclopean constructions of the ancient Mediteranan silands, the moal of Easter Island or the Egyptian pyramids have in common? Undoubtedly, they all are magnificent structures built with gigantic stones, but they are also linked by the long-term aim of their constructors for a correct orientation in time and space. Astronomy was the simplest tool to achieve that purpose, in our short presentation, we will provide a few skietches to create calendars or to orient scored buildings appropriately, in an ongoing search for the metaphysical aspects of life, death and reneval.

Biography

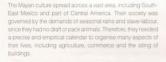
Lin Julian Antonio Bernome avies is an astronomer at the institution of Astrolicia de Caranias (Tenerile, Spair) where he has lectured on the history of astronomy and archaeoastronomy, and he carries out research into ecoplanets, stellar physics and cultural astronomy. He has published or edited a dozen books and authored nearly 200 publications on those subjects. Currently, he is President of the European Society for Astronomy in Culture (EAAC) and of the Spanish Time Allocation Committee (CAT) of the Caranian observations in recent years he has carried out extensive research on the astronomical traditions of ancient Civilisations, concentrating on the ancient Mediterranean cultures, notably in Egypt.

He was born in Murcia (Spain) in 1962, graduated in physics from Barcelona University in 1985 and obtained his PhD in astrophysics at La Laguna University in 1989.





Julieta Fierro (Mexico)



Mayar astronomers used the Sun and the planets for their calendar. They were especially interested in Venue, sevidence suggests that they reported its transit on one of the bas-reliefs at the Mayapan site. They also constructed observatories such as the Caracot to study certain alignments. Ball games and the layout of the ball courts in the area were also linked to astronomical alignments such as the equinoses. However, the most popular event is the "descent of the serpent" at Chichen-Itza, where a shadow cast by the largest pyramid simulates a snake during the equinoses.

Biography

Dr Fierro holds a research position at the Astronomy Institute of the Universidad Nacional Autónoma de México. She is dedicated to outreach, and has written 40 popular science books, two of which include topics on Mayan astronomy. She appears every week on television and radio and writtes articles on the importance of informal public education. She has received dozens of awards, including the Kalinga Prize for the Popularization of Science at UNESCO in Paris.



George Saliba (USA) Islamic Astronomy

In this illustrated talk, I. will discuss the main astronomical issues that were raised in Islamic civilisation and their critical relationship to the preceding Greek astronomical theory, I will also illustrate the resulting proposed alternatives to Greek astronomy and their impact on European astronomy at the time of the Benaissance. The main focus will deal with the relation-ship between Copennican and Islamic astronomy, which I have already touched upon in my latest book, Islamic Science and the Making of the European Renaissance, 2007 (Cambridge MX-MIT Press).

Biography

George Saliba is Professor of Arabic and Islamic Science at Columbia University (New York).

Professor Saliba studies the development of scientific ideas from late antiquity up until early modern times, with a special focus on the various planetary theories that were developed within the Islamic civilisation and the impact of such theories or early European astronomy.

His recent research deals with some of the latest findings regarding the transmission of astronomical and mathematical ideas from the Islamic world to Renaissance Europe during the lifteenth and sixteenth centuries.

Speakers



Françoise Balibar (France) From Galileo To Einstein

Four hundred years ago Galileo Galilei, by pointing his telescope at the Moon and planets in the night sky, and highly influenced by Copernicus's train of thought, made the observations that abolished the previously well-established cosmic separation between the Earth (a place for decay, death and sin) and the Heavens (a world of intrinsic and absolute perfection). As Koyré put it, humanity had taken a definite step towards emancipation - from a closed world, enclosed in a crystal sphere, rotating about a centre, to an infinite Universe, the uniform open expanse of acentric Euclidean space. Mathematics that, up to then, had been restricted to the understanding of the movements of celestial objects became relevant to terrestrial phenomena. Three hundred years later, Albert Einstein, having worked out his general theory of relativity, realised that his theory, first intended as one of gravitation, was in fact a theory of the Universe itself, making cosmology a branch of physics. Trying to carry through Mach's principle in the framework of his theory, Einstein built a static Universe in which matter is evenly distributed, as a possible solution of the mathematical equations of gravitation, provided they include a constant (the so-called cosmological term). This had the effect that this first relativistic model of Universe, although it extends from eternity to eternity, thereby excluding any idea of creation by any transcendental will or power, implies that matter is distributed in a topologically closed three-dimensional space - in contrast to the topologically open Euclidean space provided by Galileo's

So the way from Galleo to Einstein can appear as a return to the closed world from which humanly is supposed to have escaped, with so much sound and try, three hundred years earlier. As we all know, physics (and therefore humanity) has found a way out of this paradox. There is still a lesson to be learned from this story, a lesson about the way the worldview one inherits is entwined with scientific practice, for better or for worse. A lesson about not being mistaken by the "purity" of scientific knowledge.

Biography

F. Balibar was born in 1941. She is Professor Emeritus in Physics at Paris Diderot University.

She was in charge of the French edition and translation of the selected works of Albert Einstein, Deuvres choises (6 vol.), 1985-1995, Fasts Le Seul/ CNNS, She is a co-author with Jean-Mara Lévy-Lebland of Quantique Rudiments, 1st edition, 1984. (Paris Inter-Editions, now available at Dunod) and translated into English, Quantics: Rudiments in Quantum Physics, 1990, (Amsterdam: North Holland), Her most recent book (in Colaborator with Raffaella Tonachi) is Einstein, Newton, Poincaré. Une histoire de principes, 2008, (Paris Bellar).





André Brahic (France)
The New Frontier: The Exploration Of The Solar System

For the first time in history, we are leaving our tenestrial crade using robotic space probes. For centuries, the planets of the Solar System were only points of light in the sky. Now, they are revealing many diverse phenomena and an unsuspected wealth of information. Gamma and X-rays, ultraviol and inflared radiation, radio and millimetre waves, all invisible to our eyes, are now captured by our instruments and we are discovering an active Universe, far from the serene vision of the visible sky. The exploration of the Solar System is a way to a better undestanding of our own Earth from comparisons between the planets. We are living through the third major revolution in our knowledge of the sky after those of the Ancient Greeks and the scientific renaissance of the 17th century. Endies comparisons between theory and observations are the only way tenedered.

In the 1980s, the giant planets were visited by the Voyager probes, which revealed fascinating worlds. Both spacecraft have now left the Solar System and are moving into interstellar space.

The Cassimi-Huggers mission reached Satum on 1 July 2004 and is currently studying the rings, the satellites and the planet itself showing unexpected geysers on Enceladus, lakes on Titan, mountains on lapetus, bizame shapes in the rings, gigantic Saturnian cyclones, strange small satellites, arcs around Saturn and many other wonders.

Now, after centuries of controversy, we have a better understanding of the origin of the planets and are on the eve of discovering other Earths and, maybe, even new kinds of life over the next few centuries.

Biography

André Brahio is a Professor at the University of Pasis Diderot and a Senior Scientist at the French Alornic Energy Committee (C.E.A.). He first worked on supernovae, the theory of chaos and galactic dynamics in the 1960s. In the 1970s he proposed the first model of velocity dispersion in Saturn's rings. He discovered the rings of Neptune in 1984. He was a co-investigator of the Voyager missions and he is now a member of the Cassini Imaging Team. He is currently studying planetary rings and the formation of the Solar System.

Over the past 40 years, Andre brainch as published more than 200 articles. He is one of the pioneers of French planetology. He has chaired a number of committees associated with space science, culture and education. These include, in the 1990s, chairing the Society of French Professional Astronomers and of the planetologists of the international Astronomical Union. He was a member of the committee in charge of the definition of the word "planet". Thirty years ago his name was given to an asteriol tocated 2.8 astronomical units from Earth. He has founded three laboratories and has been the thesis advisor for many students. He is known for his active promotion of scientific culture. He has participated in several hundred television shows and radio broadcasts. He is also the author of several books for general readership, including, in 2000, the best-selling Enfants du Soleit, translated into eight languages. His last book Lumières d'Étolies was published in 2008 with Isabelle Grenier Among several awards and honours, he received the Carl Sagan prize in 2000 and the Jean Perrin prize for science communication in 2006.

Speakers



Robert W. Wilson (USA)
Echoes Of Creation: Discovery Of The Big-Bang Fossil
Radiation

Prior to the 20th century, cosmology was the study of objects in the Universe, not the typicals of the Universe as a whole, in this talk I will briefly review the development of cosmology in the first half of the 20th century. I will then discuss the discovery of the cosmic microwave background radiation by Arno and me at Bell Labs and several near misses, which preceded us. I will close with an overview of the current understanding of our Universe.

Biography

Robert W. Wilson is a Senior Scientist at the Smithsonian Astrophysical Observatory of the Harvard Smithsonian Center for Astrophysics in Cambridge Massachusetts. He is technical leader of the Sub-Millimeter Array, a recently completed 8 element synthesis radio telescope.

Dr. Wilson received a BA from Rice University in 1957 and a PhD from the Caltech in 1962. After a one year postdoc at the Caltech, he joined Bell Laboratories. From 1977 until 1994 Dr. Wilson was Head of the Radio Physics Research Dept. in Holmdel, NJ.

His early work was in the fields of Galactic radio astronomy and precision measurement of radio source stengths. He was a co-discover in 1984 of the 3% cosmic background radiation which originated in the Big Bang and for which he shared the 1978 Nobel Prize in Physics. In 1970 he and his co-workers discovered a number of interstellar molecules including carbon monoxide in the 2-3 mm band. This opened up the study of molecular Jouck and star-forming regions.

He is a member of the American Astronomical Society, the American Academy of Arts and Sciences, the International Astronomical Union, the International Union of Radio Science, the American Physical Society and the National Academy of Sciences.



Martin Rees (UK)
From A "Simple" Beginning To Our Complex Cosmos

Our Universe stated off in a hot, dense and almost uniform state. As it expanded and cooled, the first atoms formed. Structures then emerged, leading to the formation of galaxies, stars and planets. Thanks to the use of ever more powerful telescopes on the ground and in space (allied to more powerful computers) sathonomers are starting to understand the properties of the complex cosmos in which we live.

Biography

Martin Rees is Professor of Cosmology and Astrophysics at the University of Cambridge, Astronomer Royal, and President of the Royal Society. He has, with many collaborators, contributed to our understanding of galaxy formation, black holes, cosmology and high energy astrophysics.

The author of more than 500 research papers, Martin Rees has made important contributions to the origin of costnic incincion-wave background radiation, as well as to galaxy clustering and formation. His studies of the distribution of quasars proved to be a rail in the coffin of the steady state theory. He was one of the first to propose that enormous black holes power quasars. He is also a well-respected author of books on astronomy and science, intended for general readership.

Martin Rees is the winner of a large number of rewards and prizes, among them the Gruber Prize in Cosmology (2001) and the Crafoord Prize in 2005 with James Gunn and James Peebles.

On 22 July 2005, he was elevated to a life peerage, sitting as a crossbencher in the House of Lords. On 6 September, he was created Baron Rees of Ludlow.





Michel G. Mayor (Switzerland)

A Multitude Of Worlds: Extrasolar Planets

The discovery of planets orbiting other stars has turned an old philosophical discussion on the plurality of worlds into an object of study in current astrophysics. Over the last thritten years more than 300 explanets have been detected, with masses covering the range of gaseous grain planets, loy planets and recently, rocky planets. These discoveries have revealed the impressive diversity of exoplanet orbital properties. Such diversity has induced a profound revision in the theory of the formation mechanisms of planetary systems. Combining observations from various techniques, we have already acquired an insight into the internal structure of these exoplanets, as well as the very first characteristics of their atmosphere. But are we able to detect planets similar to our Earth?

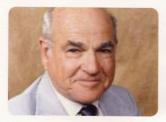
Biography

Dr. Michel G. Mayor, born in Switzerland, is a Prolessor of Astronomy at Geneva University. He is the co-discoverer, with Didler Ouled; or the first extraodar planet orbing a Sun-like star, 51 Pegasi, and has discovered more than 100 additional planets and planetary systems. Among his recent discoveries is a clanetary system with three "Super-Earths".

From 1998 to 2004, he was the Director of the Geneva Observatory. Dr. Mayor is the Principal Investigator of a large survey to search for planets in the Southern Hemisphere at the European Southern Observatory at La Silla, Chile. Part of this survey is devoted to the search for Earth-like planets.

Dr. Mayor has served on numerous astronomy committees and boards. In 2006, he was the founding president of the IAU commission on exceptanets. He was the Swiss delegate to the ESO Council from 2003-7, and from 1998-1991, President of the IAU Commission 33 on Structure and Dynamics of the Galactic System. He has authored or co-authored several hundred scientific publications. Among his many awards and recognitions, mention must be made of the 2000 Balzan Prize, the 2004 Albert Ensiets Meya and in 2005, the Shaw Prize in Astronomy, in 2008 he was named an Associate Fellow of the Royal Astronomical Society. Professor Mayor is a foreign Associate of the French Academy of Sciences.

Speakers



Baruch S. Blumberg (NASA, USA)
Astronomical Exploration And The Public Imagination

Astronomical exploration responds to the human need to understand its place in nature and in the cosmos. Society is prepared to fund the instruments needed to continue the endiess quest urged on by the limitiess reach of the human inagnation. The search is reaching to the possible origins of the universe and to the origins of life. Parallel with the probes into space time are the biological investigations at molecular and attornic dimensions, to the beginnings of organic life for space matter and to the origins of the genome, that contain much of their history which them.

Biography

Baruch S. Blumberg is a Distinguished Scientist at Fox Chase Cancer Center, Philadelphia, PA and University Probagains of Medicine and Anthropology at the U. of Pennsylvania. He served as the Founding Director of NASA Astrobiology Institute (1999–2002), Senior Advisor to the NASA Administrator (2000–2001), and as Principal Scientist of the NASA Division of Fundamental Space Biology (2003–2004). He was on the staff of the National Institutes of Health, Bethesda, MD, (1987 to 1984), Associate Director for Clinical Research at Fox Chase Cancer Center (1984–1986) and Master of Balliot College, Oxford University (1999 to 1994). He earned an MD. from the College of Physicians and Surgeons, Columbia University NY (1951), and a D. Phil (Biochemistry) from Oxford U. (1957). He has because President of the American Philosophical Society since 2005.

He was awarded the Nobel Prize (1976) for "discoveries concerning new mechanisms for the origin and dissemination of intectious diseases" and specifically for the discovery of the Hepatitis B Virus. In 1993, he and his co-inventor Irving Milman, were elected to the National Inventors Hall of Fame for their invention of the hepatitis B vaccine and the diagnostic test for hepatitis B. He has been a Visiting Professor in India (Bangalore), U. Singapore, U. of Kentucky, Indiana U., the U. of Otago, New Zealand, and Stanford U.



Kevin Govender (South Africa)
Astronomy For Humankind, Cornerstones And Universe
Awareness

In our quest for answers to the greatest mysteries of the Universe it is our responsibility as human beings not to overlook the challenges faced by life on our own planet. This presentation addresses the question of what astronomy, and thus IVACOOS, means for the development of humanity. Peach though astronomy may appear remote from someone with an empty someon, it has always managed to remain an integral part of cultures and traditions across the world, regardless of ethnicity, nationality or economic standing. Pethaps that is because astronomy has the innate ability to inspire people and to stimulate our natural human curiosity. The IVACOOP is an opportunity to use this great unifying, inspiring and stimulating subject to impact directly on the minds of people all over the world, specifically in developing regions, and more specifically the very young.

Biography

Kevin Govender is the manager of the Southern African Large Telescope (SALT) Collateral Benefits Programme at the South African Astronomical Observatory. He is the single point of contact for the International Year of Astronomy in South Africa, and Chair of the regional task group for the development of Astronomy in Africa. He is also Chair of one of the 11 Global Cornerstone projects for the International Year of Astronomy, entitled Developing Astronomy Globally, and a member of the Executive Committee Working Group for the global co-ordination of the International Year of Astronomy.





José-Francisco Salgado (USA) Astronomical Pictures At An Exhibition

This is a suite of high definition videos that takes viewers through a virtual gallery featuring awe-inspiring, art-like images and science visualisations of the cosmos as well as Salgado's own astronomy-inspired artwork. As the camera moves towards the works of art, audience members find themselves entering space through pictures and flying past Earth, planets, stars, black holes and galaxies. As in his earlier production, on Custar Holst's The Planets, D'Salgado pays dose attention to the tone and tempo of the music, resulting in an experience in which the music and visuals reinforce each other instead of competing for the viewer's attention.

Biography

Dr. José-Francisco Salgado is an astronomer and science visualiser at the Aclér Planetarium in Chicago, Enramily trained in
physics (BS, Univ. of Puerto Rico) and astronomy (PhD, Univ. of Michigan), he uses his skills in astronomy education and the
visual arts to create multimedia works that communicate science in engaging ways. His education and outreach efforts
include Spanish-language programmes, an Emmy-nominated
astronomy TV news segment, and critically accitained astronomy video suites created to accompany live performances of
classical music concerts. By the end of 2009, the video suites
will have been presented more than 25 times in ten countries.
Lately Salgado, an avid photographer, has been experimenting with high dynamic range imaging, time-lapse, infrared, and
fisheye photography, as well as with stereoscopic photography and video to enhance his multimedia works. Through his
artwork, Salgado seeks to create visually appealing images
to provoke curosity and a sense of wonder about the Earth
and the Universe. His artwork, video work, photographs, and
illustrations have been published in magazines and science
books, and shown in San Juan, Chicago, Philadelphia, Walnut
Creek (San Francisco Bay Area), Belgrade, Melbourne, Athens,
and Plestary (Slovákia), He is currently working on concepts
for more video suites, which will be produced by his company
Vectors & Poelse Unimited.



André Brack (France)
The Biggest Question Of All: The Search Fo Extraterrestrial Life

The search for a second genesis is supported by the long-last-ing popular questions "Is there like out there?". Are we along? as well as by the scientific need to understand the origin of terrestrial life. By demonstrating, in 1953, that it was possible to form amino acids from a mixture of simple gases. Stanley Miller raised the ambitious hope that chemists would be able to recreate primitive life in a test tube. Despite the tremendous efforts of chemists, the dream has not yet been accomplished. The chances of success will obviously depend upon the simplicity of the chemical reactions leading to life. The discovery of a second genesis of life on another celestal body would demonstrate the ubiquity of living matter and would suggest rather simple origins of life. What should we look for, where and how? These are the questions that will be addressed.

Biography

André Brack is an astrobiologist. He is the honorary director of research at CNRS, Centre de Biophysique Moléculaire, Offéans, where he established an excibiology team. Together with his team he continues to search for extraterestrial life and to study the origins of life. A former President of the international Society for the Study of the Origin of Life and former President-founder of the European Network of Astrobiology, he is an honorary member of the NASA Astrobiology institute and expert for exobiology at CNES, the French space agency.

Speakers



Hubert Reeves (France)
The Question Of Parallel Universes

Are there other universes, assinct and separate from our child This quastion is highly topical today among physicists and cosmologists. What are the arguments in favour of the eastence of a "multiverse" in which our world is just one among an infinite number of other universes where the laws of physics could be different? What is the credibility of these arguments? Where do we stand today on this subject?

Biography

Hubert Reeves is an astrophysicist. He graduated with a BS form the Université Montreal in 1953, obtained an MSc form McGill University, Montreal 1955, and a PhD from Cornell University, Ifhaca, NY in 1960. He was Scientific Adviser to the NSAs Institute for Space Studies, New York, 1960-64 and Directeur de Recherches at the Centre National de la Recherche Scientifique, CNRS, Paris, 1965, and Associate Professor at the Physics Department, Université de Montreal.

His subjects of research are mainly nuclear astrophysics, cosmology, the origin of the chemical elements, the Solar system and the Universe. Hubert Reeves devotes a substantial fraction of his time to public outreach, and has written a great numbe of best-sellers. He also frequently participates in television shows, such as the Night of the Stars, with a wide success.

He is now deeply involved in the preservation of our living environment, advocating actions for sustainable development. He is President of the Ligue ROC pour la Préservation de la Faune Sauvage.



Jocelyn Bell Burnell (UK) Pulsars - Progress And Puzzles

This talk will review our understanding of pulsars (neutron stars) and point to some of the current fascinating puzzles about these objects.

Biography

Jocean beil sumell is best known for het role in the discovery of pulsars. She is a Visiting Professor in Astrophysics, University of Oxford, with a continuing fascination with pulsars/neutron stars. She is the first female President of the UK's institute of Physics.



Silvia Torres-Peimbert (Mexico)

A Beautiful Death For A Star: Planetary Nebulae

Filanetary nebulae are glowing shells of gas that have attracted the attention of astronomers and the general public for their beauty and diversity. They are the final stages in the life of intermediate mass stars similar to the Sun. With larger and better telescopes, observations at all wavelengths and more powerful modelling capabilities, we have acquired a better understanding of these objects. The talk will focus on recent results on this topic.

Biography

brography
S. Torres-Peimbert is Professor at the Instituto de Astronomia of
the Universidad Nacional Autonoma de Mexico. She obtained
her Ph.D. at the University of California Berkeley in 1969. Since
then she has returned to her home country and been working
at the Iniversity of Mexico in Mexico City.

Positions in Societies: Vice-President of the International Astronomical Union (2000-6), Council of the American Astronomical Society (1988-90); Board of Directors of the Astronomical Society of the Pacific (1981-84).

Honours: Academic Medal, Sociedad Mexicana de Fisica; Premio Universidad Nacional, UNAM; Premio Nacional de Ciencias.

Other activities: Editor of Revista Mexicana de Astronomia y Astrofisica (1974-98) and of Revista Mexicana de Astronomia y Astrofisica (Serie de Conferencias) (2001-).

Membership: Mexican Academy of Sciences; Mexican Physical Society; American Astronomical Society; Astronomical Society of the Pacific; International Astronomical Union; Academy of Sciences for the Developing World.



Ken'ichi Nomoto (Japan) Cosmic Explosions: The Violent Supernovae

The supernova of the year 1572 marked a milestone in the history of science. Danish astronome: Tycho Brake concluded from his accurate observations of the "new star" in Cassiopeia that it must be located far beyond the Moon. This contradiction to the Aristoteian ideal that change in the sky could only occur in the sub-lunar regime ultimately lod to the abandoning of the idea of the immutability of the heavens. Besides the general importance of supernovae as the main producers of heavy elements and as probes for the physics of the Universe, using the light echoes of the explosion to look back in time and reveal what exactly happened in November 1572 make our findings highly appealing to a broad scientific and non-scientific audience.

Using very modern spectral observations with the 8.2 m Subaru telescope, it is now possible to study the light echo of the supernova of 1572, which Tycho Brahe observed with the naked eye. These results, published in Nature, and their implications are also directly connected to the current hot topic of cosmology.

Biography

Ken'ichi Nomoto is Professor of Astronomy at the Institute for the Physics and Mathematics of the Universe (IPMU), University of Tokyo. He graduated with a PhD from the Dept. of Astronomy, University of Tokyo. His main research areas are theoretical studies of stellar evolution, supernovae, gamma-ray bursts and the origin of the elements.

Awards: Nishina Memorial Prize and the Japan Academy Prize

Speakers



Reinhard Genzel (Germany)
Report From The Abyss: Massive Black Holes

Evidence has been accumulating for several decades that many galaxies harbour central mass concentrations that may be in the form of black holes with masses between a few milllion to a few billion times the mass of the Sun. Measurements over the past two decades, employing adaptive optics imaging and spectroscopy on large ground-based telescopes now confirm the existence of such a massive black hole in the centre of our Milky May, beyond any reasonable doubt. These data also provide key insights into the properties and environment of the black hole. I will also briefly discuss the cosmological evolution of massive black holes.

Biography

Professor Reinhard Genzel was born on 24 March 1952, in Bad Homburg, Germany, He is presently Managing Director at the Max-Planck-institut für extraterrestrische Physik, Garching, Germany and a Scientific Member of the Max-Planck Society, a Full Professor in the Physics Department of the University of California, Berkeley, California, USA and an Honorary Photessor at the Ludvin-Vasamillan University, Munich, Germay, Munich, German

His main research interests are massive black holes and star formation in galaxies, the Galactic Centre, galaxy formation and evolution, infrared/submillimetre spectroscopy and high resolution imaging and spatial interferometry. Among many wards and honours, he has received the Balzan Prize for Infrared Astronomy, the Petrie Prize of the Canadian Astronomical Society, the Einstein-Medaille der Albert-Einstein Gesellschaft, and the Shaw Prize from the Shaw Prize Foundation, Hong Kong.



Jonathan P. Gardner (NASA)

Astronomy From Space: The Hubble, Herschel And James Webb Space Telescopes

Space-based astronomy is going through a renaissance, with three Great Observatories currently flying H-ubbe in the visible and ultraviolet, Spitzer in the infrared and Chandra in X-rays. The future looks equally bright. The final servicing mission to H-ubble will take place in 2009 and promises to make the observatory more capable than ever, with two new camera, and a refurbishment that will allow it to last at least five years. The upcoming launch of the Herschel Space Telescope in poen the flar-infrared to explore the cool and dusty Universe. We also look forward to the launch of the James Webb Space Tele escope in 2013, which will provide a successor to onth Hubble and Spitzer. In this talk I will discuss some of the highlights of scientific discovery made with space telescopes in the last ten years and reveal the exciting promise of the next ten years.

Biography

Jonathan P Gardner is the Chief of the Observational Cosmoly Lab and the Deputy Senior Project Scientist for the James Webb Space Telescope at NASA'S Goddard Space Flight Center. He got his PhD in 1992 from the University of Hawaii, studying ocsnology and the evolution of galaxies using inflared detectors that were being tested for use in the Hubble Space Telescope. After graduate school, Dr Gardner won a NATO fellowship to pursue postdoctoral research at the University of Durham in the north of England. In 1996 he came Coddard just before astronauts installed the infrared detectors in Hubble. In addition to conducting research with data from Hubble, Dr Gardner also helps with the plants of Hubble's successor. The James Webb Space Telescope, scheduled for launch early in the next decade, is designed to study galaxy formation and evolution in the infrared, reaching backwards in time to detect and identify the first light from stars and galaxies in the early history of the Universe.





David Southwood (ESA)

Cosmic Vision – the scientific programme of ESA

Since the 1970s, ESA has coordinated Europe's space scinece aspirations through a concrete programme of ambitious projects aimed at the understanding of the Universe we live in. ESAS Horizon 2000, Horizon 2000 Plus and Cosmic Vision are consecutive long-term programmes, each spanning about a decade, that have given birth to a wide spectrum of scientific missions in different fields of space research. These range from the deep investigation of the Sun and its influence on Earth, to scientific exploration of the planets and the minor bodies of the Solar System such as comets and asteroids, to the study of the distant Universe and of the phenomena that take place in it.

Major achievements include the first close encounter of Giotto with a comet, the furthest ever landing in the Solar System with Huygens on Titan, the discovery of water-loe beneath the surface of Mars with Mars Express, the first amazing close-up pictures of the Sun with SOHO, as well as the most detailed insights into powerful and exitic phenomena such as supernovae explosions and black holes with XMM-Newton and integral will be to meeting a few.

Cosmic Vision 2015-2025, the next slot in ESA's scientific programme, encompasses advanced missions that will address, with new means, the fundamental questions: "How did we get from the Big Bang to where we are now?", "Are there other worlds elsewhere?"

Future plans range from detailed studies of the Sun and solar-terestrial system, a sample return from a primitive body, searches for extrasolar planets, to a search for dark energy. A return to the outer Solar System and a long-term exploration of Mars are envisaged with NASA. Major steps in astrophysics under study are a major world X-Ray observatory and a gravitational wave observatory.

Biography

David Southwood obtained a PhD in Physics at Imperial College, London, UK. After postdoctoral work in the USA he followed an academic career at Imperial College, ending by being head of the Blackett Laboratory from 1994 to 1997. Over the past 56 years, Profesor Southwood has worked on various space missions, including, most recently, being Principal Investigator of the Cassini magnetometer (MAG) through build and cruise phases of the mission (i.e. until to 2004). His research interests include geophysics and planetary science. He first joined ESA in 1997 as Head of Earth Osservation Strategy, and originated the present Earth Science programme of the agency. After a year in academia, as Regents Professor at UCLA, at ISSI, Bern, and then at Imperial College, he came back to ESA in May 2001 to lead the Agency's Science programme. He was appointed ESA Director of Science and Robotic Exploration in spring 2008.



Astronomy: crossroads of science and culture

This exhibition (15 to 23 January) accompanies the launching of the INX2000 on 15 and 16 January 2009 and the International Symposium on the Role of Astronomy in Culture and Society which will take place in UNESCO from 19 to 23 January 2009. It will feature exhibits of different actors in the field of astronomy and space science, and works of art and heritage inspired by astronomy.

Exhibitors

IYA2009 Cornerstone Project: from Earth to the Universe

National Aeronautics and Space Administration (NASA)

European Space Agency (ESA

European Organization for Astronomical Research in the Southern Hemisphere (ESO)

Global e-VLBI

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Centre national d'études spatiales (CNES)

The World at Night (TWAN

Canada-France-Hawaii Telescope Corporation

Initiative for the International Association of Dark-Sky Parks

The Instituto de Astrofisica de Canarias

Starlight Initiative

Artistic exhibition

An artistic exhibition is being organised within the IAU Symposium 260 "The Role of Astronomy in Society and Culture" (19-23 January), featuring sculptures, paintings, photographs, videos, from a wide variety of artists from around the world, and all inspired by astronomical phenomena.

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- * Ian Robson (IAU, Com 55)
- * Anna Sidorenko-Dulom (UNESCO)



Thursday 15 January

Evening 19:30-21:30

Reception at the Palais de la Découverte

Video clip of "Around the World, Around the Sky" by Robert Pansard-Resson (France)

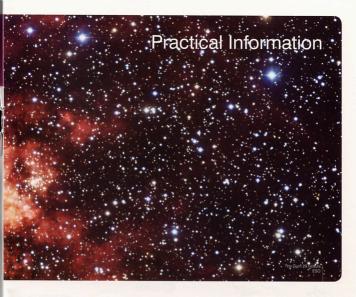
Film of the Adler Planetarium presented by José-Francisco Salgado (USA) with the music "The Planets" by G. Holst

Friday 16 January

Cocktail reception: 18:00-19:30

Closing ceremony: 19:30-21:30 (open to all)

Cultural event: "Sun Rings" performance by the Kronos



Location and dates

The opening ceremony for the International Year of Astronomy will take place on 15-16 January 2009, at the UNESCO headquarters in Paris, France.

The address is

Maison de l'UNESCO 125 rue de Suffren

- Metro (subway):
 SEGUR station (line 10)
 - CAMBRONNE station (lines 6 and 8)



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